Space Weather Highlights **SWPC PRF 1983**
26 August - 01 September 2013 **02 September 2013**

Solar activity was at very low to low levels. The period began at very low levels and continued until 28 August. By 29 August, low levels were reached with an isolated C1 flare from Region 1836 (N11, L=339, class/area Cao/180 on 30 August) at 29/0434 UTC. Also on 29 August was a 44 degree filament eruption centered near S40E00 that produced a coronal mass ejection (CME) first seen in SOHO/LASCO C2 imagery at approximately 29/0600 UTC. The ejecta was directed south of the ecliptic plane and was determined to not be geoeffective. On 30 August, a long duration C8/1f flare was observed from Region 1836 at 30/0246 UTC. Associated with this flare were Type II (1318 km/s) and Type IV radio sweeps as well as a partially Earth-directed CME (estimated speed of 1071 km/s). By 31 August through 01 September, only low level C-class flaring was observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 26-27 August due to activity associated with a geoeffective coronal hole high speed stream (CH HSS). Normal to moderate levels were observed for the rest of the period.

Geomagnetic field activity was at quiet to minor storm levels. Quiet levels were observed until mid-day on 27 August. At approximately 0700 on 27 August, solar wind speed, density and total field measurements began to rise. The Bz component of the went southward to a maximum of -13 nT while wind speed slowly increased to a maximum of 512 km/s by early on 28 August. A solar sector boundary crossing was observed at approximately 27/1816 UTC. The geomagnetic field responded with unsettled to minor storm levels that continued through early on 28 August. By 0800 on 28 August, the total field was diminished to around 4 nT while the solar wind was in decline. Quiet levels were observed once again through late on 30 August, when a positive polarity CH HSS moved into geoeffective position. Solar wind speeds increased to near 430 km/s while the total field increased to around 9 nT. Total field slowly declined to near 5 nT by late on 31 August, however wind speeds briefly increased at approximately 01/0630 UTC to near 580 km/s before ending the period around 450 km/s. Active periods were observed late on 30 August through early on 31 August, but diminished to quiet to unsettled periods for the remainder of the period. The August 30 CME appeared to have a weak impact early on 02 September; however no significant geomagnetic effects were observed at the time of this report.

Space Weather Outlook
02 September - 28 September 2013

Solar activity is expected to be at very low to low levels. A chance for an M-class flare exists with the return of old Region 1817 (S21, L=241) from 02-15 September.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to

moderate levels with high levels expected on 04-07 September, 12-16 September, 19-23 September, and again on 27-28 September due to activity associated with CH HSSs.

Geomagnetic field activity is expected to be at quiet to active levels on 02 September associated with activity from the 30 August CME. Unsettled to active conditions are expected on 04 September, 10-14 September, 17-19 September, 26-28 September due to CH HSS activity. Quiet to unsettled periods are expected on 23-24 September due to a solar sector boundary crossing.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
26 August	111	35	210	B3.1	0	0	0	0	0	0	0	0
27 August	110	61	390	B3.0	0	0	0	0	0	0	0	0
28 August	108	44	440	B2.4	0	0	0	0	0	0	0	0
29 August	109	55	450	B2.4	1	0	0	1	0	0	0	0
30 August	108	62	390	B3.1	1	0	0	3	1	0	0	0
31 August	108	60	340	B2.3	1	0	0	4	0	0	0	0
01 September	104	71	320	B2.0	1	0	0	3	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ^{2} -day -sr)			Electron Fluence (electrons/cm^2 -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
26 August	1.4e+05	1.2e+04	2.6e+03		6.8e+07	
27 August	3.1e+05	1.1e+04	2.5e+03		4.6e+07	
28 August	1.5e+05	1.1e+04	2.6e+03		2.4e+06	
29 August	1.2e+05	1.1e+04	2.6e+03		6.2e+06	
30 August	3.2e+05	1.1e+04	2.4e+03		8.0e+06	
31 August	7.0e+05	1.2e+04	2.4e+03		1.1e+06	
01 September	1.0e+06	1.1e+04	2.5e+03		1.5e+07	

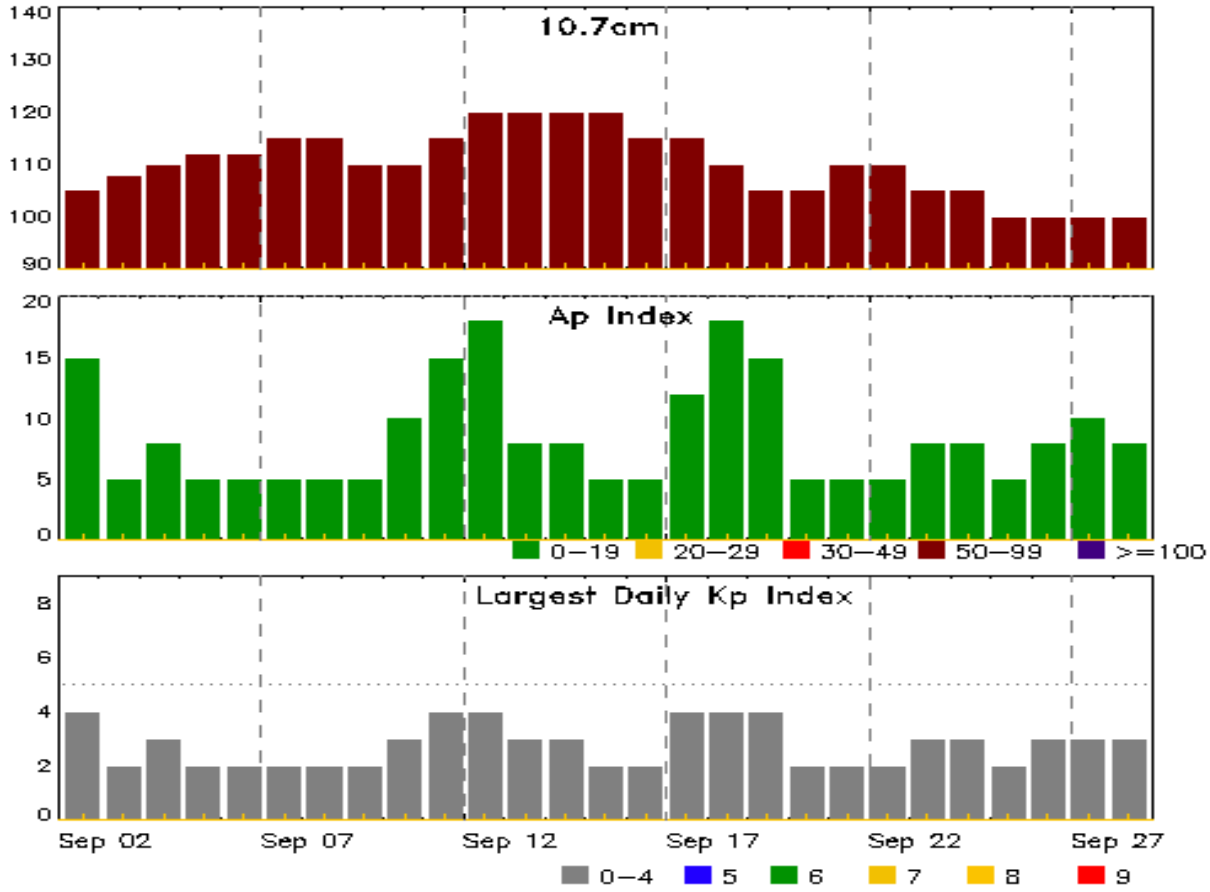
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
26 August	4	1-1-1-1-2-1-2-1	6	2-1-1-3-2-2-1-1	5	2-1-1-1-2-1-2-1
27 August	12	3-1-1-2-3-2-4-3	19	1-2-0-3-5-4-4-4	15	2-1-0-2-3-3-5-4
28 August	8	4-2-2-1-2-1-1-1	17	4-3-5-4-2-2-1-1	9	4-3-2-1-1-1-1-1
29 August	4	1-1-0-1-2-1-2-1	2	1-1-1-1-0-1-1-0	3	1-1-0-1-1-1-1-1
30 August	7	0-0-1-2-3-2-2-3	5	0-0-1-1-3-2-2-2	8	0-0-1-2-2-2-2-4
31 August	11	4-3-3-2-2-2-1-2	22	4-3-5-4-5-2-0-1	11	4-3-3-2-2-2-1-2
01 September	10	3-2-3-2-3-2-2-2	24	2-2-5-4-6-3-2-1	9	3-2-3-2-2-2-2-2

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
26 Aug 1206	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	23/1500
27 Aug 1113	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	23/1500
27 Aug 1708	WARNING: Geomagnetic K = 4	27/1710 - 2100
27 Aug 1826	ALERT: Geomagnetic K = 4	27/1824
27 Aug 1926	WARNING: Geomagnetic K = 5	27/1925 - 2100
27 Aug 1947	ALERT: Geomagnetic K = 5	27/1943
27 Aug 2229	WARNING: Geomagnetic K = 4	27/2228 - 28/0600
27 Aug 2237	ALERT: Geomagnetic K = 4	27/2233
27 Aug 2341	WARNING: Geomagnetic K = 5	27/2345 - 28/0600
28 Aug 1529	WATCH: Geomagnetic Storm Category G1 predicted	
30 Aug 0248	ALERT: Type II Radio Emission	30/0212
30 Aug 0249	ALERT: Type IV Radio Emission	30/0224
30 Aug 1616	WATCH: Geomagnetic Storm Category G1 predicted	
30 Aug 2326	WARNING: Geomagnetic K = 4	30/2326 - 31/0700
30 Aug 2341	ALERT: Geomagnetic K = 4	30/2337
31 Aug 0615	EXTENDED WARNING: Geomagnetic K = 4	30/2326 - 31/1300

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
02 Sep	105	15	4	16 Sep	115	5	2
03	108	5	2	17	115	12	4
04	110	8	3	18	110	18	4
05	112	5	2	19	105	15	4
06	112	5	2	20	105	5	2
07	115	5	2	21	110	5	2
08	115	5	2	22	110	5	2
09	110	5	2	23	105	8	3
10	110	10	3	24	105	8	3
11	115	15	4	25	100	5	2
12	120	18	4	26	100	8	3
13	120	8	3	27	100	10	3
14	120	8	3	28	100	8	3
15	120	5	2				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
27 Aug	0826	0835	0847	B7.7			1834
29 Aug	0418	0434	0501	C1.2			1836
29 Aug	0643	0647	0705	B5.3	SF	N16E17	1834
29 Aug	1307	1314	1325	B5.8			1836
29 Aug	2131	2134	2136	B4.4			
30 Aug	0204	0246	0406	C8.3	1F	N13E43	1836
30 Aug	B0526	U0526	A0530		SF	S11E22	1835
30 Aug	1006	1007	1011		SF	S10E11	1835
30 Aug	1421	1424	1427		SF	S10E09	1835
31 Aug	0620	0622	0633		SF	S12W01	1835
31 Aug	0936	0940	0944	B7.3	SF	N15E28	1836
31 Aug	1529	1535	1541	B5.4	SF	N14W16	1834
31 Aug	1720	1736	1751	C2.6	SF	N12E30	1836
31 Aug	2201	2226	2249	B5.4			1834
01 Sep	1041	1042	1043		SF	S08W17	1835
01 Sep	1416	1420	1425	C1.7	SF	N11W31	1834
01 Sep	1658	1703	1708	B6.7	SF	N11W32	1834

Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1822												
15 Aug	S08E57	153	30	7	Dao	5	B								
16 Aug	S08E44	153	20	4	Cro	3	B								
17 Aug	S08E30	153	10	4	Bxo	3	B								
18 Aug	S08E15	155	10	3	Bxo	2	B								
19 Aug	S11W00	156	10	3	Bxo	3	B								
20 Aug	S11W14	158	plage												
21 Aug	S11W28	158	plage												
22 Aug	S11W42	159	plage												
23 Aug	S11W56	160	plage												
24 Aug	S11W70	161	plage												
25 Aug	S11W84	162	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 156

			Region 1823												
15 Aug	S07E72	138	120	2	Hsx	1	A								
16 Aug	S07E57	140	130	3	Hsx	1	A								
17 Aug	S07E43	140	120	2	Hsx	1	A								
18 Aug	S07E29	141	120	3	Cso	5	B								
19 Aug	S08E17	140	170	4	Cso	4	B				1				
20 Aug	S08E03	139	120	6	Cso	5	B								
21 Aug	S07W10	140	120	6	Cso	5	B	1							
22 Aug	S07W23	139	100	2	Hsx	1	A								
23 Aug	S06W37	140	100	2	Hsx	1	A								
24 Aug	S07W49	139	90	2	Hsx	1	A								
25 Aug	S10W63	140	60	1	Hsx	1	A								
26 Aug	S10W76	140	60	1	Hsx	1	A								
27 Aug	S10W89	140	60	1	Hsx	1	A								
								1	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 139

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1826												
18 Aug	N08E21	149	10	1	Axx	1	A								
19 Aug	N13E01	155	10	3	Bxo	2	B								
20 Aug	N13W13	157	plage												
21 Aug	N13W27	157	plage												
22 Aug	N13W41	158	plage												
23 Aug	N13W55	159	plage												
24 Aug	N13W69	160	plage												
25 Aug	N13W83	161	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 155

			Region 1827												
18 Aug	S17E70	100	180	6	Dso	3	B								
19 Aug	S18E58	98	300	8	Dao	8	B								
20 Aug	S18E44	98	160	9	Dao	7	BG								
21 Aug	S18E32	97	130	7	Dac	8	B								
22 Aug	S18E18	98	60	6	Dao	8	B								
23 Aug	S18E05	98	30	5	Cro	8	B	1			1				
24 Aug	S18W06	96	10	5	Bxo	4	B								
25 Aug	S18W20	98	plage												
26 Aug	S18W34	98	plage												
27 Aug	S18W48	99	plage												
28 Aug	S19W63	100	plage												
29 Aug	S19W77	102	plage												
								1	0	0	1	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 98

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1828												
19 Aug	N15E65	92	30	9	Cao	4	B								
20 Aug	N16E57	89	60	11	Cao	6	B				1				
21 Aug	N15E41	88	40	8	Cao	3	B	1			3				
22 Aug	N14E26	90	20	2	Cro	1	B	3			2				
23 Aug	N15E14	89	20	3	Cro	3	B								
24 Aug	N15W00	89	20	2	Hrx	3	A								
25 Aug	N05W13	90	10	1	Bxo	2	B								
26 Aug	N05W26	90	10	1	Axx	1	A								
27 Aug	N05W40	91	10	1	Axx	1	A								
28 Aug	N05W54	92	plage												
29 Aug	N05W68	93	plage												
30 Aug	N05W83	95	plage												
								4	0	0	6	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 89

			Region 1832												
22 Aug	N25W49	166	30	4	Cso	2	B								
23 Aug	N25W61	165	30	4	Cro	6	B								
24 Aug	N25W76	166	plage												
25 Aug	N25W90	168	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 166

			Region 1833												
23 Aug	N18E07	96	10	2	Bxo	3	B								
24 Aug	N18W07	98	plage												
25 Aug	N18W21	99	plage												
26 Aug	N18W35	99	plage												
27 Aug	N18W49	100	plage												
28 Aug	N18W63	101	plage												
29 Aug	N18W77	102	plage												
								0	0	0	0	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 96

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1834												
24 Aug	N14E71	19	10	9	Bxo	3	B								
25 Aug	N14E64	16	10	1	Bxo	2	B								
26 Aug	N14E48	16	plage												
27 Aug	N14E34	17	10	10	Bxo	3	B								
28 Aug	N14E21	16	20	4	Cro	6	B								
29 Aug	N14E07	18	40	6	Dai	15	B				1				
30 Aug	N13W07	19	30	7	Cri	17	B								
31 Aug	N13W20	18	30	10	Cri	12	B				1				
01 Sep	N12W34	18	60	11	Eai	18	BG	1			2				
								1	0	0	4	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 18

			Region 1835												
24 Aug	S09E80	10	30	2	Hsx	1	A								
25 Aug	S10E63	13	180	2	Hsx	1	A								
26 Aug	S10E51	12	140	4	Cso	3	B								
27 Aug	S10E39	11	240	4	Dso	5	B								
28 Aug	S11E26	10	280	4	Dko	6	B								
29 Aug	S10E13	12	250	4	Dko	7	B								
30 Aug	S10W00	12	180	4	Dai	10	B				3				
31 Aug	S11W13	11	140	4	Dsc	9	B				1				
01 Sep	S11W26	10	110	5	Cso	11	B				1				
								0	0	0	5	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 12

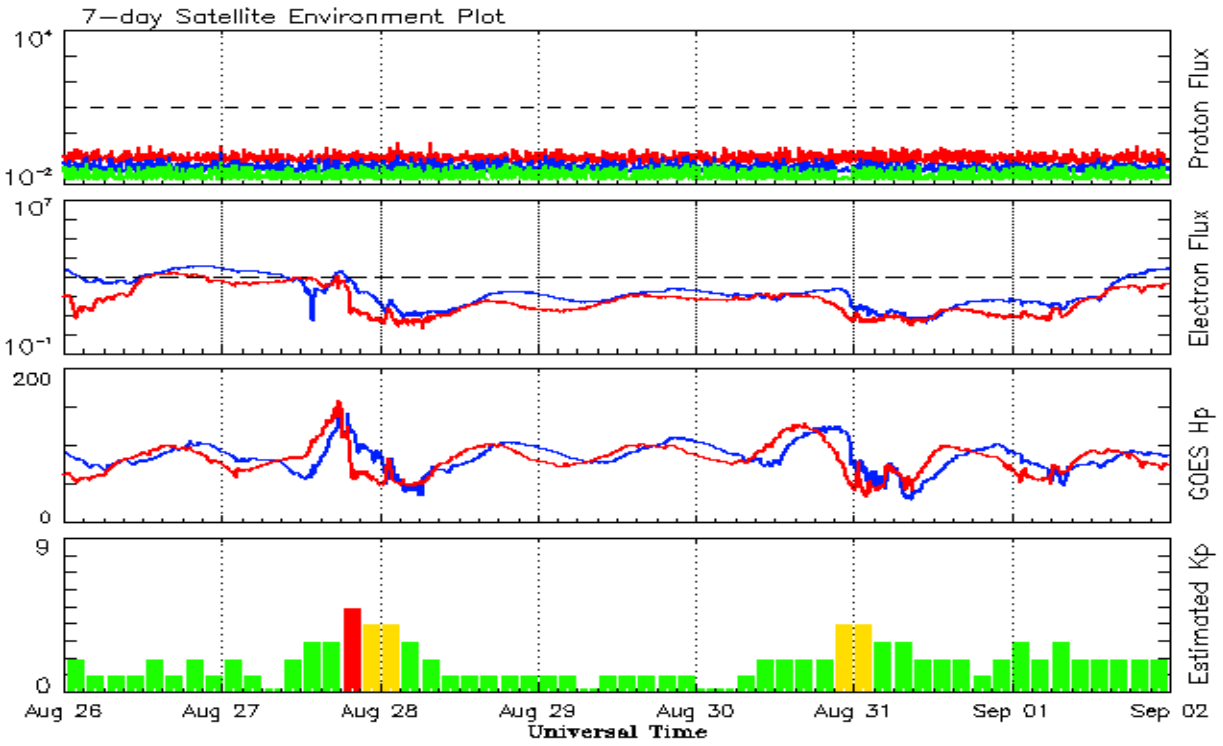
			Region 1836												
27 Aug	N10E68	342	70	3	Hsx	1	A								
28 Aug	N10E55	342	140	2	Hax	2	A								
29 Aug	N12E42	343	160	3	Hax	3	A	1							
30 Aug	N11E33	339	180	10	Cao	5	B	1				1			
31 Aug	N11E19	338	170	14	Eao	9	BG	1			2				
01 Sep	N11E04	339	150	14	Eso	12	BG								
								3	0	0	2	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 339

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				2011					
September	106.4	78.0	0.73	84.6	59.5	134.5	118.4	13	7.7
October	116.8	88.0	0.75	84.6	59.9	137.2	118.4	7	8.0
November	133.1	96.7	0.73	86.3	61.1	153.1	119.5	3	8.0
December	106.3	73.0	0.69	89.2	63.4	141.2	121.6	3	8.0
				2012					
January	91.3	58.3	0.64	92.0	65.5	133.1	124.4	6	8.3
February	50.1	32.9	0.66	94.2	66.9	106.7	126.7	7	8.4
March	77.9	64.3	0.82	94.1	66.8	115.1	126.8	14	8.1
April	84.4	55.2	0.65	91.3	64.6	113.1	125.8	9	8.0
May	99.5	69.0	0.69	87.7	61.7	121.5	123.8	8	8.2
June	88.6	64.5	0.73	83.9	58.9	120.5	121.1	10	8.3
July	99.6	66.5	0.67	82.4	57.8	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.2	115.7	119.2	7	8.1
September	84.0	61.4	0.73	83.7	58.1	123.2	118.9	8	7.8
October	73.5	53.3	0.73	85.0	58.6	123.3	119.2	9	7.4
November	89.2	61.8	0.69	87.3	59.7	120.9	120.1	6	7.3
December	60.4	40.8	0.68	88.0	59.6	108.4	120.1	3	7.5
				2013					
January	99.8	62.9	0.63	87.1	58.7	127.1	118.9	4	7.5
February	60.0	38.1	0.63	86.7	58.4	104.4	118.0	5	7.4
March	81.0	57.9	0.71			111.2		9	
April	112.8	72.4	0.64			125.0		5	
May	125.5	78.7	0.63			131.3		10	
June	80.1	52.5	0.66			110.2		13	
July	86.1	57.0	0.66			115.6		9	
August	90.2	66.0	0.73			114.7		9	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.



Weekly Geosynchronous Satellite Environment Summary
Week Beginning 26 August 2013

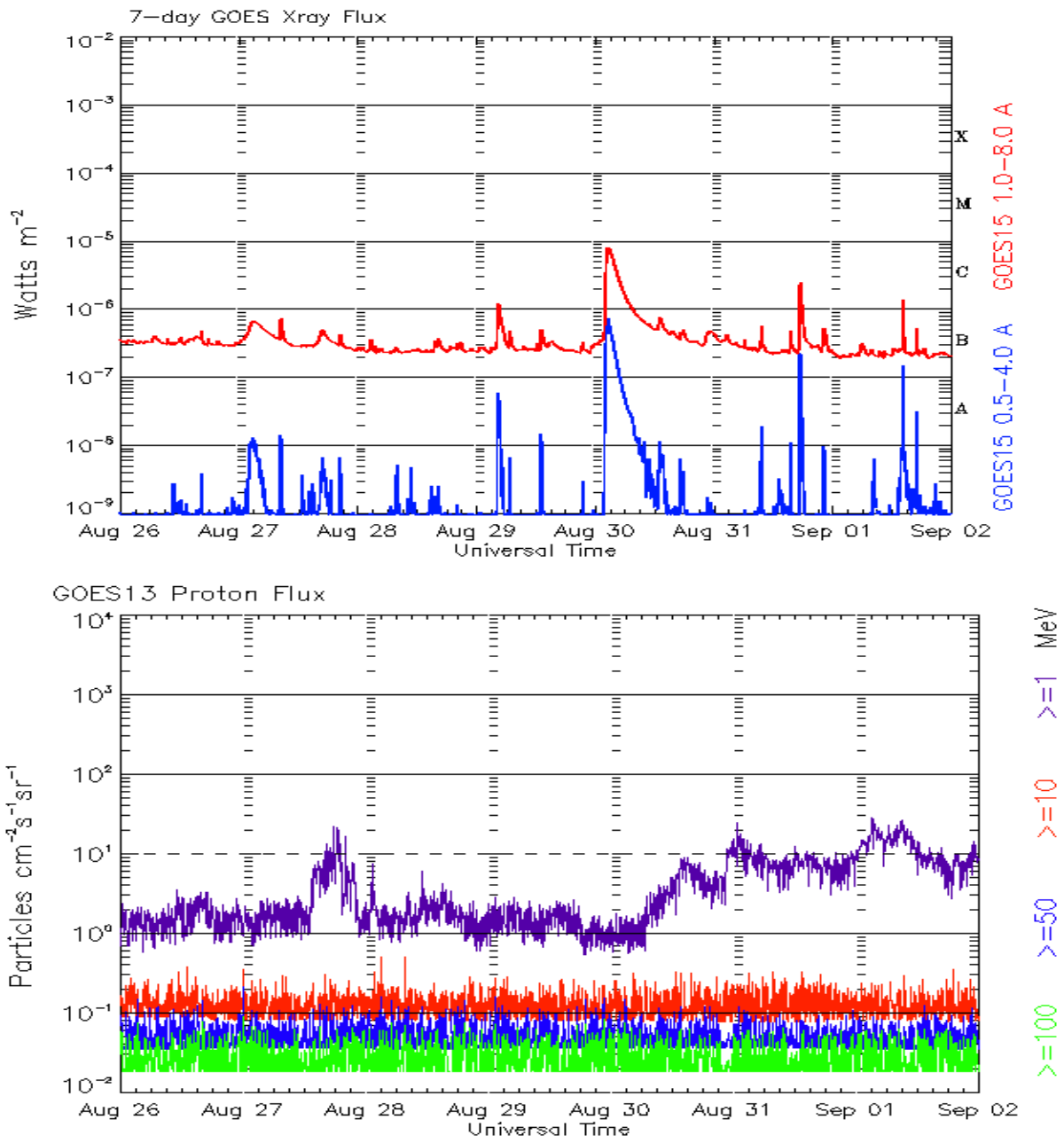
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 26 August 2013

The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

The Weekly has been published continuously since 1951 and is available online since 1997.

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